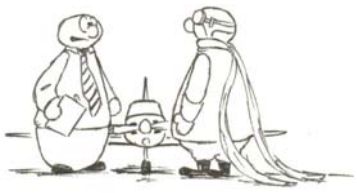
Plane Talk

THE AERONAUTICAL NEWSLETTER OF THE FAA SAFETY PROGRAM
NORTHWEST MOUNTAIN REGION



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Special points of interest:

- Inspection Authorization (IA)
- Density Altitude (Part 3)
- Some thoughts for Certified Flight Instructors
- Northwest Aviation Conference
- Pilot Fatigue

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New Certificate Format

On July 31, 2003, the FAA Administrator, Marion C. Blakey, announced at the Experimental Aircraft Association Air Venture that the FAA has begun issuing new, security-enhanced airman certificates. The new durable, credit card-sized certificates are made from high quality composite polyvinyl chloride media card stock and incorporates new security features, such as a hologram of the FAA seal, micro printing, and ultraviolet ink printing. The certificate will be issued to all new and existing airmen as they achieve higher certificate levels or additional ratings and will replace certificates that have been lost or damaged. A $2.00 fee sent to FAA –Airman Certification Branch, P.O. Box 25082, Oklahoma City, OK 73125, is still required to receive a replacement certificate. It is expected that all active airmen will be able to replace their certificates over the next three to four years.

The "old style" certificate is still valid. The "new style" certificate will be issued to all airmen and will be issued with the appropriate seal color.

Airmen Services—GET CONNECTED!

The FAA would like to invite you to register your email address with Airmen Services. It will not be released outside of the agency.

The web address is:

http://registry.faa.gov/amsvcs.asp

It will enable you to comply with FAR 61.60 Change of Address requirement officially online **right now** and many more features will be added in the near future, like:

- Safety Seminar information and online registration
- Notification of availability of safety related materials

Inside this issue:

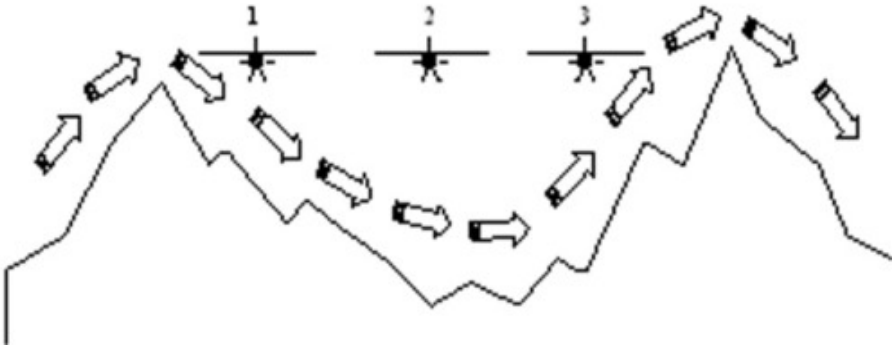
Practical Density Altitude (Part 3)

In previous issues we introduced you to the wisdom of Kurt Anderson – NTSB accident investigator. Kurt takes a special interest in density altitude accidents because they are the number one cause of fatal general aviation airplane accidents within the seven northwestern states (not including Alaska). Whenever a northwestern density altitude accident occurs in which the pilot survives, Kurt interviews the pilot to determine what mental mistake they made that led to the accident. Through this process Kurt has identified 10 deadly sins of density altitude. This brings us to Deadly Sin Number Three – The misapplication of the information presented in the drawing above. (See previous issues of Plane Talk for sins one and two. Available online at: http://www.faa.gov/fsdo/slc/Safety.htm)

...you must decide to make the 180-degree turn while the valley is still wide enough to complete the turn using less than half of the valley!

Probably every pilot has seen this drawing at least once. It comes with an official explanation that goes something like, "Flying in the vicinity of a ridge results in downdrafts for the pilot of airplane 1. Airplane 2 might escape the downdrafts, but a course reversal either to the right or to the left would leave little maneuvering room between the airplane and the ridge. Airplane 3 takes advantage of free lift from the up slope airflow and retains the advantage of an into the wind escape route".

The official explanation is technically correct but it does not go far enough. Since it is questionable whether airplane



2 can complete a 180-degree turn, we can assume this valley is not very wide. Most pilots choose to fly up the correct side of the valley (airplane 3 in this case), but push on too far before deciding to reverse direction. As long as things are going well for airplane 3 the pilot continues bravely on course. It is only when things get tight that the pilot of airplane 3 decides to make the 180. However turning around at this point may result in a radius of turn, which places the airplane somewhere between airplanes 1 and 2. This is precisely the valley location described in the official explanation as an area of downdrafts!!!

The trap has been sprung. Another aircraft smacks the terrain, and probably with fatal results.

If you are going to fly through such a valley or canyon (you won't see your Plane Talk staff taking such a risk unless there's a destination airport in the valley) **you must decide to make the 180-degree turn** while the valley is still wide enough to complete the turn **using less than half the valley!** You've got to avoid the area of the valley left of airplane 2. Too many of pilots are not.

Our search and rescue friends offer the following advice. If you absolutely, positively must fly in the valley, never fly **up** the valley. Stay well above the terrain, familiarize yourself with the area, then descend into the high end of the valley, and fly **down the valley.**

Thanks, Kurt

CFI CARE—For the care and nourishment of flight instructors

This column will be directed primarily to flight instructors and anyone aspiring to be a flight instructor.

I started instructing for a pretty good sized FAR 141 (FAA approved) school, and continued instructing for about 12 years. We worked long and hard, and averaged about 1,100 flight hours a year, and I loved it. I consider good flight instructors to be some of the most dedicated and hard working people in aviation.

Many times we create work for ourselves by not making the best use of our time. With students, don't try to make them understand; make it so they can not misunderstand. That takes some thought about the way we communicate. Basics are just that, basic. Paint the picture, but don't build the wall to hang it on.

With students, don't try to make them understand; make it so they can not misunderstand.

My first rule in instructing is, **don't test before you teach!** Most of the time, this is what I get when I administer an initial CFI checkride. The instructor applicant says to me, playing the role of the new and extremely limited student. "All right, we are going to taxi out and line ourselves up on the centerline of the runway and slowly apply full power. (Add a little right rudder to compensate for torque, etc.) Then we are going to accelerate to 60 knots and then we will pull back on the yoke and climb out at 80 knots." Does this sound familiar?

When we give a new or very low time student any hard

figures, such as an airspeed (60 or 80, etc.) or an altitude, we have given them something that they can fail, we have given them **a test,** and we haven't taught them what an 80 knots. climb looks like. All we have succeeded in doing is to focus their tunnel

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Pilot Fatigue

Pilot fatigue may have been a contributing factor in many of the accidents investigated by the FAA. Many of the FATAL accidents happened at NIGHT, on CROSS COUNTRY, in marginal weather, and after several hours of flying (often on the home leg of a long flight). These accidents involved pilots of varying levels of experience.

Have a plan in case of delays on the trip, avoid night flying and keep the trip legs to 1½ hours max. Use Flight Following, and if using GPS, back up your position with a sectional chart.

As always, before you make any impulsive decisions, think! Don't let your passengers talk you into something you don't feel comfortable doing.

A day late is better than forever late!

Kieth D. Crimin, SPM
Portland FSDO

CFI CARE—For the care and nourishment of flight instructors

(Continued from page 3)

vision inside the cockpit.

May I offer the following suggestion. "Let's taxi out on to the runway and line ourselves up on the center line, choose a reference point as distant as possible on the horizon, in line with the centerline, then gradually apply full power, maintaining directional control with the rudders, and allow the airplane to accelerate." (Additional instruction as appropriate, right rudder for torque, aileron into the wind, etc.) Then when you as the instructor determine that you are about 10 knots below the airspeed that you want, you can continue. "Now let's gradually increase back pressure on the yoke and pitch up to a climb attitude, but never lose sight of the reference point over the nose, and try to fly directly towards it." If the student flies toward the reference point they should stay in line with the runway (helps teach traffic pattern and wind affect) and if they don't lose sight of the point they can't stall, and you should both have good forward visibility. If they pitch up to any climb attitude, they will gain altitude and at worst they will climb at too high an airspeed. You can then make adjustments as necessary. Try it; I think that you will like it.

Remember, the cockpit is not a very good classroom...

As a CFI, I am a firm believer in letting the student do as much of the flying as they can. I found it very successful to put both of my hands on top of the instrument panel as soon as possible, even on the first flight. By moving my hands and pointing, it got them out of tunnel vision, did wonders for their confidence, and let them know that I had faith in their abilities. I found that their learning and retention really improved.

I will finish up for now with this suggestion that worked very well for me. After takeoff, when we had climbed to about 500 ft. AGL and the student had established a good climb attitude, **I would point in the direction that I wanted them to turn** and continue to say something like, "This is a good altitude to start a crosswind, lets look off our wingtip and choose a **new reference point** and maintaining this same climb attitude let's start a gentle climbing turn towards the new reference point."

By getting the student to look off the wing tip, we teach them to always scan before turning, it further reduces tunnel vision, and teaches them to square the pattern, all good things to teach them, and further builds their confidence. Remember, the cockpit is not a very good classroom; the audio visuals (your voice and hands) can sure help.

If you have any hints that you have found helpful, please let me know.

More later.

John W. Goostrey, SPM
Boise FSDO

Northwest Aviation Conference

The 21st Annual Northwest Aviation Conference will be returning to the Puyallup Fairgrounds February 21 and 22, 2004. 150 aviation trade show booths, and seminars, seminars, seminars. Featured speakers will include AOPA President Phil Boyer, Flying Magazine West Coast editor Lane Wallace, Spin instructor extraordinaire Rich Stowell, among others. Plan to spend the weekend in Puyallup, Washington.

For more information call Rachel at 1-866-922-7469 or go to: http://Washington-aviation.org

What You IA's Really Do!

We all know what an IA does. The Inspection Authorization holder inspects aircraft on a yearly basis and determines whether the aircraft is flyable, i.e. "airworthy". This logbook statement is the one item that makes the Airworthiness Certificate for the aircraft legal. I personally don't see how you do it. Aircraft maintenance is just far too complicated for me to feel comfortable doing it on a regular basis. I hold an A&P, but for many years I have not exercised the privileges inherent with my A&P. I am an Aviation Maintenance Technician (AMT). It is true that in my present position, I cannot exercise those privileges unless I am working on my own airplane; and it is doubtful I will ever be an aircraft owner. Now you know where I'm coming from.

Another of your duties is to be a mentor to pilots. Some of you do not hold pilot certificates and you are expected to mentor pilots?...

You IA's have other responsibilities! Did you know that? You are not actually your own person; you belong to a system that is emulated around the world. You have at least four other responsibilities as I see it.

One of those responsibilities is to conduct yourselves in a manner that leaves your ethics in airworthiness unquestioned. You have an obligation to conduct yourselves before your peers and subordinates so that no one can accuse you of conducting your inspections in a casual manner. No AMT will ever see you cut corners on your inspections, use unapproved parts, conduct your inspections without "Approved Data" readily available, never mislead your customers or clients, and/or release an aircraft that is "unairworthy". Your paperwork will be accurate and concise and will leave no question as to what you did and how you did it. You will sign your name to it and the entry will be unquestioned; and both you and the aircraft owner will be pleased. The AMT's who work with you will emulate you and conduct themselves accordingly. You can even recommend other AMT's to participate in the AMT Awards Program, yourself included. The system will work correctly for everyone.

Another of your duties is to be a mentor to pilots. Some of you do not hold pilot certificates and you are expected to mentor pilots? How can this be? In fact, the IA is one of the most respected people in the flying business. You are the person responsible for the fact that aircraft are not falling out of the sky on a regular basis due to mechanical failure. The IA is that person who has this unbelievable store of knowledge: that separates fact from fiction, sees corrosion when it is invisible to the naked eye, has certainly hundreds of torque settings committed to memory, can tell the tension of control cables just by looking at them, and can spot improper safety wire from inside their office. You can even leap small hangers in a single bound. You are Superman. That's what the pilots think. These hero-worshipping pilots will take your advice when you tell them point blank "you're gonna kill yourself- what were you thinkin' you bonehead"??!! These pilots actually think you have a direct line to the FAA. You IA's have been around long enough that you can spot unsafe conditions and take appropriate action before the accident happens. Ground or air, makes no difference.

In the year 2000, we had the lowest aircraft accident and fatality rate since records were first kept in 1938, and several of the past five or six years, we've had zero fatalities on the airlines. We cannot say exactly what we did to get to this low accident rate, but we do know that large numbers of pilots attend pilot safety meetings on a regular basis. The Internet has allowed pilots to access all sorts of information and even take training that complies with the WINGS pilot proficiency program and others. Several different programs on the Internet can be completed that will allow the CFI to renew by taking the seminar at home. We are in the computer age and must use the computer for all purposes that will advance our

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What you IA's Really Do!

(Continued from page 5)

knowledge about anything. You IA's can encourage pilots accordingly and recommend they participate in the FAA WINGS program.

Another thing you do, as I see it, is participate in the GA-SECURE program. Since September 11, 2001, we are changing the way we do business and we are on our guard and more aware of our surroundings. You are simply asked to report anything unusual at your airport by calling 1-866-GA-SECURE or 1-866-427-3287. This call goes directly to the National Response Center where you can report your suspicions. Hopefully, you also have a good working relationship with the County Sheriff or local police. More about GA-SECURE in the future.

Oh, yeah. Here's something else you do. You are aware of your surroundings when you taxi and/or run-up aircraft, so as to avoid a runway incursion. Pilots have a great respect for Inspection Authorization holders, and therefore, you could have a lot of influence on these pilots about runway incursions. If you IA's start the education process at your local airport or FBO, before the runway incursion happens, everyone will be better off. Remember, you can call me at any time and I'll be more than happy to chat with the airman you are trying to help stay out of trouble and alive.

As you can see, just inspecting aircraft is not the only thing you do. You are a "keystone" element in this system that has given the United States of America the safest air transportation system in the world. Thanks for your help and lets keep the lines of communication open.

Jim Herzfeld, SPM
Casper FSFO

You are simply asked to report anything unusual at your airport by calling 1-866-GA-SECURE or 1-866-427-3287

CALLBACK

The following articles are from the NASA publication "Callback," a monthly safety bulletin from the NASA Aviation Safety Reporting System (ASRS). You can get a free subscription by writing PO Box 189, Moffett Field, CA 94035-0189, or by visiting: http://asrs.arc.nasa.gov

"I THOUGHT HE SAID…"

A B757 pilot shows that even when we think we are paying attention, the thinking process can be short circuited by a preconceived notion.

Approach said, "Expect Runway 18R." On short final I thought I heard, "Cleared to land Runway 18R." I asked Tower to confirm clearance to land. Again, I thought he said, "Cleared to land Runway 18R." After landing, Tower said both transmissions were, "Cleared to land Runway 18L." I don't know what to say, I just kept thinking Runway 18R.

"I THOUGHT HE SAID, II"

In another "I thought he said" incident, a tower controller might have helped the involved pilot avoid a wrong runway landing by mentioning a change of runway assignment in the clearance.

At ten miles out, I gave my position…and was told to enter a right pattern to Runway 28. I was told to report the river, which is about 3 miles out. I reported the river where I was told to continue to Runway 28 and enter a right downwind. When I got abeam Runway 20, I was cleared to land Runway 20. I didn't catch the difference in the two runways. I was told twice to report Runway 28 and when told Runway 20, I thought he said Runway 28. I landed on Runway 28. The controller asked why I landed on Runway 28 instead of Runway 20. I responded that I didn't realize that I had made that mistake.

Computer-based Training for Pilots

(See related article on page 8)

If you have a computer, then you are on the way to becoming a better, safer pilot, using programs produced by the FAA. Now don't get the idea that I think everything you need to know about flying can be learned on a computer. There are some things about flying, particularly in general aviation aircraft, that really need to be done in the air. But, there are also many things that you can learn outside the cockpit, perhaps even better since you don't have the noise and workload to distract you. The new skills and knowledge can then be applied when you actually get in the aircraft.

So, the CD-ROM brings the seminar material to the pilot, at a time of their own choosing.

That is one of the concepts behind a series of training programs produced by the FAA, and made available on CD-ROMs. The other idea behind the CD-ROMs is that many pilots, myself included, simply can't or won't go to safety seminars. Often we live too far away from the meeting site, or just can't make time in our busy schedules to attend. So, the CD-ROM brings the seminar material to the pilot, at a time of their own choosing.

Thus far, we have produced three CD-ROM training programs. They are aimed mainly at improving different aspects of pilots' Aeronautical Decision-Making, since poor decision-making is a primary cause in a large proportion of fatal accidents. The first program is called "Making Your Own Rules: Creating a Personal Minimums Checklist." *(See PAVE checklist below and related article on page 8 for more details.)* It helps pilots identify hazards to safe flying and to set up personal standards and procedures to control those hazards, before they take-off. The second program is called "Progressive Decision-Making." This program is designed to help pilots learn how to make better in-flight decisions, by treating decision-making just like any other skill that can be learned and practiced. The final program is called "WeatherWise: Weather-Related Decision-Making." Because weather is so often a factor in fatal general aviation accidents, this program focuses specifically on how to make good decisions when dealing with weather.

The programs are available from our web site http://FlySafe.faa.gov.

David R. Hunter, Ph.D.
Research Psychologist, FAA

	Pilot	Aircraft
P	How current are you?	Any maintenance problems?
	How rested are you?	Properly equipped?
A	Experience & recency with aircraft?	Adequate performance?
	Experience with terrain along route?	Fuel and oil consumption?
V		
	EnVironment	**External Pressures**
	Weather conditions?	Reasons for trip?
E	Day or night?	Outside pressures to go?
	Hostile terrain?	Time pressures?

U.S. Department of Transportation
Federal Aviation Administration

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Making Your Own Rules

(See related article on page 7.)

Most accidents and incidents occur because the pilot failed to consider some critical factor during the preflight planning. Most errors that lead to incidents are made prior to takeoff. Of the 125 Aviation Safety Reporting System (ASRS) incident reports reviewed in a NASA study, 90% of all time-related human errors occurred in the preflight or taxi-out phase of operation.

Better planning may prevent problems. One way of planning is to use a checklist to make sure that nothing is overlooked. (See page 7)

Pilots often say that usually no one thing causes an accident, but that it takes several things to lead up to it. If you take precautions to break the "chain of events" leading to an accident, you can prevent it. Use your personal minimums checklist to PAVE the way to a safe flight.

Order your free copy of "Making Your Own Rules: Creating a Personal Minimums Checklist" CD-ROM today available on the web at: http://FlySafe.faa.gov

Or you may want to join us at one of our many FAA sponsored WINGS Safety Seminars during the next few months where this will be one of many important topics discussed. Call your local Flight Standards District Office for more details or check on the web at: http://www.awp.faa.gov/spm/announce.cfm

Don't end up like this! Know your limitations!